

**REMARKS/ARGUMENTS**

The Office Action mailed May 27, 2007, has been received and reviewed. Claims 1-65, 67-77 and 80-90 are currently pending in the application. Claims 1-16, 18-20, 24, 26, 28-53, 55-58, 60, 62, 63, 68-77, 85, 86 and 88-90 stand rejected. Claims 27, 61, 64, 65 and 67 have been allowed. Claims 17, 21-23, 25, 54, 59 and 87 have been objected to as being dependent upon a rejected base claim, but the indication of allowable subject matter in such claims is noted with appreciation. Applicants have amended claims 1, 27, 36 and 61 herein to improve antecedent basis. The amendments to claims 1, 27, 36 and 61 do not relinquish any scope of the claims. Applicants respectfully request reconsideration of the application as amended herein and in view of the arguments set forth hereinbelow.

**35 U.S.C. § 103(a) Obviousness Rejections**

Obviousness Rejection Based on U.S. Patent No. 6,314,754 to Kotliar in view of U.S. Patent No. 5,820,160 to Johnson *et al.*

Claims 1-16, 18-20, 24, 26, 28-53, 55-58, 60, 62, 63, 68-77, 85, 86 and 88-90 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kotliar (U.S. Patent No. 6,314,754) in view of Johnson *et al.* (U.S. Patent No. 5,820,160). Applicants respectfully traverse this rejection, as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, there must be “a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements” in the manner claimed. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicant’s disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006);

MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

Claims 1 through 16, 18 through 20, 24, 26 and 28 through 35

Independent claim 1 of the present invention is directed to a fire suppression apparatus. The apparatus of claim 1 includes: a housing defining a first opening therein, a second opening therein and a flow path providing fluid communication between the first opening and the second opening; a gas-generating device located and configured to provide a flow of a first gas into the flow path such that the flow of the first gas draws a volume of ambient air from a location outside the housing, through the first opening and into the flow path; and at least one oxygen-getting device disposed in the flow path, wherein the oxygen-getting device is configured to reduce a level of oxygen in the volume of ambient air as it flows therethrough.

The Examiner cites Kotliar as disclosing “a fire suppression apparatus comprising a housing defining a first opening therein, a second opening therein and a flow path providing a fluid communication between the first opening (at 21) and the second opening (at 23), a gas generating device 24, and a [sic] oxygen-getting device 20 disposed in the flow path.” (Office Action, page 2). The Examiner notes that “Kotliar does not disclose a gas generating device as recited.” (*Id*).

The Examiner then cites Johnson as teaching “a gas-generating device that produces a flow of gas which draw a volume of ambient air into the device.” (*Id*). The Examiner asserts that it “would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Kotliar by replacing the gas generating device with a gas generating [sic] to draw a volume of ambient air as taught by Johnson et al.” (*Id*).

Applicants respectfully disagree with the Examiner’s assertions and conclusions.

Kotliar describes a fire prevention and suppression system for human occupied computer rooms and other industrial and public facilities. (See, e.g., col. 2, lines 15-50; Abstract). Kotliar’s system includes a compressor (24) that compresses ambient air to a pressure of approximately 18 psi and feeds the compressed air to a hypoxic generator (20). The compressed air is fed through one or more molecular sieve beds (29) of the hypoxic generator to separate oxygen from the other gases contained in the ambient air. Once the molecular sieve beds are

saturated with oxygen depleted air, the oxygen depleted air is passed to a room (e.g., a computer room) to continually maintain the room in a hypoxic state (i.e., with an oxygen level of approximately 12% to 18% depending on its intended use). (See, e.g., col. 4, line 37 through col. 4, line 62). Thus, Kotliar attempts to prevent or suppress fires by *maintaining* the air of a given environment at a predetermined oxygen level by continual introduction of hypoxic air into the room.

Johnson describes an air bag inflating device that utilizes a gas generating material (26) that, when combusted, generates a gas to inflate the air bag. (See, e.g., col. 2, lines 42-64). As noted by the Examiner, the inflating device also includes a venturi section (38) that, when the gas generated by the gas generating material (26) flows therethrough, causes ambient air to mix with such gas to effect a cooling of the gas and to enhance the overall volume of gas used to inflate the air bag cushion (and hence reducing the amount of propellant or gas generating material required to inflate the cushion). (See, e.g., col. 3, line 49 through col. 4, line 21).

Applicants submit that, absent resorting to Applicants' own disclosure and the use of hindsight reconstruction, there is a complete lack of motivation to combine Johnson with Kotliar in the manner proposed by the Examiner. First, Kotliar already utilizes ambient air (drawn into the compressor) and does not need to incorporate a venturi or similar device (such as described by Johnson) in order to draw ambient air into its system.

Moreover, Kotliar describes a system that continually maintains the oxygen level of air in a given environment at a specified level. To do so, it uses a compressor (24) to provide a continual flow of compressed air to the hypoxic generator. Replacement of Kotliar's compressor with a device that is configured to provide a single, short-lived discharge of gas (such as when fired to inflate an airbag), which also incidentally draws in a volume of ambient air into the system at the same time, would not enable continual maintenance of an oxygen level within a given environment. In other words, such a modification of Kotliar's system would render it inadequate for its intended purpose.

Additionally, there is not a reasonable expectation of success in combining Johnson with Kotliar in the manner proposed by the Examiner. As already noted, the compressor of Kotliar provides ambient air to a hypoxic generator at a pressure of approximately 18 psi. However, as recognized by those of ordinary skill in art, gas generating devices used in air bag inflation

operate at significantly higher pressures. The hypoxic generator described by Kotliar would not likely be configured for operation at the pressures that the inflating device of Johnson conventionally produces. Likewise, the relatively high flow rate produced by the inflating device of Johnson would likely overwhelm the hypoxic generator of Kotliar.

Additionally, if one were to replace the compressor of Kotliar with the inflating device of Johnson, the resultant gas provided to the hypoxic generator would not be ambient air, as is set forth by Kotliar in the described operation of its system. Rather, some other gas (provided by the gas generating device), mixed with an amount of ambient air, would flow to the hypoxic generator. Applicants find nothing in Kotliar or Johnson to suggest that the hypoxic generator would be able to satisfactorily process this new, unspecified mixture of gas so as to produce air containing a desired level of oxygen as intended by Kotliar.

Thus, Applicants submit that there is a clear lack of motivation to combine Kotliar and Johnson in the manner proposed by the Examiner. Likewise, there is not a reasonable expectation of success in the proposed combination.

As such, Applicants submit that claim 1 is clearly allowable over the proposed combination of Kotliar and Johnson. Applicants further submit that claims 2 through 16, 18 through 20, 24, 26 and 28 through 35 are allowable as being dependent from an allowable base claim as well as for the additional patentable subject matter introduced thereby.

With respect to claim 3, Applicants submit that there is a lack of motivation to configure a nozzle that would accelerate the flow of gas to a supersonic velocity. In fact, Applicants submit that one of ordinary skill in the art would likely avoid such flows in a system such as described Kotliar.

Likewise, with respect to claim 4, Applicants submit that one of ordinary skill in the art would likely avoid sonic flows in a system such as described by Kotliar.

With respect to claims 6 and 7, Applicants fail to find any explicit teachings regarding the gas that is produced by the inflator device of Johnson.

With respect to claims 13 and 14, while the Examiner states that Kotliar discloses a filter, Applicants note that Kotliar does not teach or suggest a filter *disposed between the solid propellant composition and the nozzle*.

With respect to claim 16, Applicants note that the Examiner fails to point to any teaching or suggestion in Kotliar or Johnson regarding at least one conditioning apparatus disposed within the flow path.

With respect to claim 19, Applicants fail to find any teaching or suggestion in Kotliar or Johnson (nor does the Examiner cite any specific teaching) that the oxygen getting device include an oxygen reactive material including at least one of iron, nickel, copper, zirconium and titanium.

With respect to claim 20, Applicants submit that Kotliar and Johnson fail to teach or suggest that the at least one oxygen-getting device is thermally coupled to the nozzle.

Applicants, therefore, submit that claims 1 through 16, 18 through 20, 24, 26 and 28 through 35 are allowable over Kotliar and Johnson, at least for the reasons set forth hereinabove, and respectfully request reconsideration and allowance thereof.

Claims 36 through 53, 55 through 58, 60, 62 and 63

Independent claim 36 is directed to a fire suppression system comprising at least one fire suppression apparatus and a controller. The at least one fire suppression apparatus includes: a housing defining a first opening therein, a second opening therein and a flow path providing fluid communication between the first opening and the second opening; a gas-generating device located and configured to provide a flow of a first gas into the flow path such that the flow of the first gas draws a volume of ambient air from a location outside the housing, through the first opening and into the flow path; and at least one oxygen-getting device disposed in the flow path, wherein the oxygen-getting device is configured to reduce a level of oxygen in the volume of ambient air as it flows therethrough. The controller is configured to generate a signal and transmit the signal to the at least one fire suppression apparatus upon the occurrence of a specified event, wherein the gas-generating device is configured to provide the flow of the first gas upon receipt of the signal from the controller.

The Examiner relies on Kotliar and Johnson as applied to claim 1 (as discussed hereinabove), and further concludes that “[h]aving a controller as recited in claim 36 is obvious in order to detect an event and activate the apparatus.” (Office Action, page 3).

As set forth in detail hereinabove, there is a clear lack of motivation to combine Kotliar and Johnson in the manner proposed by the Examiner. For example, modification of the Kotliar

system to replace the compressor with the inflating device of Johnson would render the Kotliar system inadequate for its intended purpose of *maintaining* the oxygen level of the air in an environment at a specified level.

Additionally, as discussed hereinabove, based on the various thermodynamic and fluid flow principals associated with Johnson's inflating device as compared to those of Kotliar's system, the Examiner's proposed combination of Kotliar and Johnson lacks a reasonable expectation of success.

Applicant, therefore, submits that claim 36 is allowable over the proposed combination of Kotliar and Johnson. Applicants further submit that claims 37 through 53, 55 through 58, 60, 62 and 63 are allowable as being dependent from an allowable base claim as well as for the additional patentable subject matter introduced thereby.

With respect to claim 44, Applicants submit that there is a lack of motivation to configure a nozzle that would accelerate the flow of gas to a supersonic velocity. In fact, Applicants submit that one of ordinary skill in the art would likely avoid such flows in a system such as described Kotliar.

Likewise, with respect to claim 45, Applicants submit that one of ordinary skill in the art would likely avoid sonic flows in a system such as described by Kotliar.

With respect to claim 51, while the Examiner states that Kotliar discloses a filter, Applicants note that Kotliar does not teach or suggest a filter *disposed between the solid propellant composition and the nozzle*.

With respect to claim 53, Applicants note that the Examiner fails to point to any teaching or suggestion in Kotliar or Johnson regarding at least one conditioning apparatus disposed within the flow path.

With respect to claim 56, Applicants fail to find any teaching or suggestion in Kotliar or Johnson (nor does the Examiner cite any specific teaching) that the oxygen getting device include an oxygen reactive material including at least one of iron, nickel, copper, zirconium and titanium.

With respect to claim 57, Applicants submit that Kotliar and Johnson fail to teach or suggest that the at least one oxygen-getting device is thermally coupled to the nozzle.

Applicants, therefore, submit that claims 36 through 53, 55 through 58, 60, 62 and 63 are allowable over Kotliar and Johnson, at least for the reasons set forth hereinabove, and respectfully request reconsideration and allowance thereof.

Claims 68 through 77, 85 and 90

Independent claim 68 is directed to a method of suppressing fires. The method includes: providing a housing with a first opening and a second opening; defining a flow path between the first opening and the second opening; producing a fire-suppressing gas; introducing the fire-suppressing gas into the flow path; aspirating a volume of ambient air from a location external of the housing through the first opening and into the flow path; mixing the volume of ambient air with the fire-suppressing gas to produce a gas mixture; reducing a level of oxygen contained within the volume of ambient air including flowing the volume of ambient air over an oxygen reactive material; and discharging the gas mixture through the second opening.

The Examiner relies on Kotliar and Johnson as applied to claim 1 and as discussed hereinabove. As set forth in detail hereinabove, there is a clear lack of motivation to combine Kotliar and Johnson in the manner proposed by the Examiner. For example, modification of the Kotliar system to replace the compressor with the inflating device of Johnson would render the Kotliar system inadequate for its intended purpose of *maintaining* the oxygen level of the air in an environment at a specified level.

Additionally, based on the various thermodynamic and fluid flow principals associated with Johnson's inflating device as compared to those of Kotliar's system, the Examiner's proposed combination of Kotliar and Johnson lacks a reasonable expectation of success.

Moreover, Applicants fail to find any teaching or suggestion in either Kotliar or Johnson that substitution of the gas generating device of Johnson for the compressor of Kotliar would produce a fire suppressing gas as recited by claim 68.

Applicants, therefore, respectfully submit that claim 68 is clearly allowable over the proposed combination of Kotliar and Johnson. Applicants further submit that claims 69 through 77, 85 and 90 are allowable at least by virtue of their dependency from an allowable base claim.

With respect to claim 75, Applicants submit that there is a lack of motivation to configure a nozzle that would accelerate the flow of gas to a supersonic velocity. In fact, Applicants submit that one of ordinary skill in the art would likely avoid such flows in a system such as described Kotliar.

Likewise, with respect to claim 76, Applicants submit that one of ordinary skill in the art would likely avoid sonic flows in a system such as described by Kotliar.

Applicants, therefore, submit that claims 68 through 77, 85 and 90 are allowable over Kotliar and Johnson, at least for the reasons set forth hereinabove, and respectfully request reconsideration and allowance thereof.

Claims 86, 88 and 89

Independent claim 86 is directed to a method of suppressing fires. The method includes: providing a housing with a first opening and a second opening; defining a flow path between the first opening and the second opening; producing a fire-suppressing gas; introducing the fire-suppressing gas into the flow path; aspirating a volume of ambient air from a location external of the housing through the first opening and into the flow path; mixing the volume of ambient air with the fire-suppressing gas to produce a gas mixture; flowing the gas mixture through a conditioning device, wherein flowing the gas mixture through a conditioning device further comprises flowing the gas mixture through an oxygen-getting device; and discharging the gas mixture through the second opening.

The Examiner relies on Kotliar and Johnson as applied to claim 1 and as discussed hereinabove. As set forth in detail hereinabove, there is a clear lack of motivation to combine Kotliar and Johnson in the manner proposed by the Examiner. For example, modification of the Kotliar system to replace the compressor with the inflating device of Johnson would render the Kotliar system inadequate for its intended purpose of *maintaining* the oxygen level of the air in an environment at a specified level.

Additionally, based on the various thermodynamic and fluid flow principals associated with Johnson's inflating device as compared to those of Kotliar's system, the Examiner's proposed combination of Kotliar and Johnson lacks a reasonable expectation of success.

Moreover, Applicants fail to find any teaching or suggestion in either Kotliar or Johnson that substitution of the gas generating device of Johnson for the compressor of Kotliar would produce a fire suppressing gas as recited by claim 86.

Applicants, therefore, respectfully submit that claim 86 is clearly allowable over the proposed combination of Kotliar and Johnson. Applicants further submit that claims 88 and 89 are allowable at least by virtue of their dependency from an allowable base claim.

Applicants, therefore, submit that claims 86, 88 and 89 are allowable over Kotliar and Johnson, at least for the reasons set forth hereinabove, and respectfully request reconsideration and allowance thereof.

#### **Objections to Claims 17, 21-23, 25, 54, 59 and 87 / Allowable Subject Matter**

Claims 17, 21-23, 25, 54, 59 and 87 stand objected to as being dependent upon a rejected base claim, but are indicated to contain allowable subject matter and would be allowable if placed in appropriate independent form.

Applicants note that claims 17, 21-23, 25, 54, 59 and 87 each depend, ultimately, from one of independent claims 1, 36 or 68 which are believed to be in condition for allowance.

Applicants, therefore, respectfully request reconsideration and allowance of claims 17, 21-23, 25, 54, 59 and 87.

**ENTRY OF AMENDMENTS**

The amendments to claims 1 and 36 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

**CONCLUSION**

Claims 1-16, 18-20, 24, 26, 28-53, 55-58, 60, 62, 63, 68-77, 85, 86 and 88-90 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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